

UNIVERSITY OF CALIFORNIA.

AGRICULTURAL EXPERIMENT STATION.

BULLETIN NO. 6.

[In order to render the results of investigations and experiments conducted by the Agricultural Department of the University of California more quickly and more generally available than has heretofore been done through the annual or biennial reports, it is proposed to embody hereafter, in the form of "Bulletins," to be issued as often as may seem desirable, reports of results, as well as such other discussions, information or answers to questions as may be of general interest. It is intended to make these bulletins, as a rule, short enough for insertion in the daily or weekly papers of the State, and proof-slips of the same will be regularly mailed to papers applying thereto. The substance of these bulletins will ultimately be embodied in a more complete and connected form, in the annual reports of the College of Agriculture.]

Comparative Examination of Claret Grapes from Fresno and Livermore Valley.

The influence of locality in determining the peculiarities, quality and quantity of grapes and wine, is among the most important questions before the grape grower; since they will, in a great degree determine, also, the ultimate profits of the business.

During the first two years of its work, the viticultural division of the experiment station has only been able to accumulate scattered data bearing upon these points. A wider interest taken in the work by intelligent growers during the past season, renders it possible to present, among other points, an interesting comparison of three important varieties of claret grapes from two widely different districts, but of the same year and of grapes gathered from vines of nearly the same age, viz: Three and four years from the cutting. The varieties presented are the Grenache, Mataro and Carignane; the lots were furnished, respectively, by Mr. R. Denicke, of Fresno, and Mr. Julius P. Smith, of Livermore valley. The first was received between September 6th and September 13th; the second, September 27th; both were well ripened, but not overripe, and all were in excellent condition; only the color of the Fresno grapes was light, in consequence of the damage to the leaves by the vine hopper. All were stemmed, crushed, fermented and pressed alike as nearly as possible, and by the same persons, so as to render the data as rigorously comparable as possible. The following table exhibits the results as regards the yield of the grapes in stems, pomace and murk:

NAME.	1 STEMS, per ct.	POMACE.		MURK.	
		2 Fresh, per ct.	3 Dried, per ct.	4 Per cent.	5 Gall. per ton.
Grenache...	F. {	4.23	11.4	5.1	84.4 177.6
	L. {	5.54	13.8	5.0	80.7 161.4
Mataro....	F. {	3.76	17.6	6.5	78.6 137.3
	L. {	5.39	11.5	5.0	83.1 167.1
Carignane..	F. {	2.63	10.8	4.7	87.1 179.6
	L. {	4.65	11.1	5.7	84.8 165.6

The first column shows a notable difference as to the weight of stems contained in a given weight of fruit from each locality. The percentage of stems is smaller in the Fresno grapes in all cases—in the Carignane, to the extent of nearly 50 per cent. Inspection shows the Fresno stems to be more slender and less succulent than those from Livermore valley, owing, doubtless, to the drier climate of Fresno.

The two next columns show that, throughout, a larger percentage of juice was extracted from the Fresno grapes than from the others, the difference being least in the case of the Mataro, yet perceptible even there. The dried pomace amounts throughout to somewhat less than half of the weight of the fresh, but varies in opposite directions in the Mataro and Carignane, while equal in the Grenache. This may be partly due, of course, to a difference in ripeness. The number of gallons of murk per ton furnished by the several lots, as given in the fifth column, are the result of direct measurement of the liquid. Here also Fresno yields are somewhat higher than those from Livermore grapes; the difference being very slight, however, in the case of the Mataro.

In the following table are given some of the chief points determined in the examination of the must, excepting the alcohol and tannin, which were estimated in the young wine.

NAME.	Total Solids by Spindle.....	Alcohol in Wine.		Tannin.....	Acid in Must.....
		By Weight.	By Volume.		
Grenache...	F. {	22.2	*	9.70 11.90	.109 .436
	L. {	21.7	21.38	9.20 11.50	.087 .750
Mataro.....	F. {	21.7	21.75	9.20 11.50	.076 .525
	L. {	21.0	20.24	8.48 10.60	.055 .691
Carignane...	F. {	*	22.67	8.84 11.00	.073 .675
	L. {	19.9	20.24	8.48 10.60	.063 .677

*Determination lost.

The first column shows that in the Grenache and Mataro, the spindle indicated a heavier must for Fresno, and the same is doubtless true of the Carignane, as appears by reference to the next column, No. 2. This gives the total sugar as determined by the "Copper Test," which usually yields results slightly too high; but it will be noted that here the differences between the two localities appear to be increased, the Livermore must containing, evidently, a larger proportion of "non-sugar" than that from Fresno. This relation is corroborated by the next column, No. 3, which shows the alcohol percentages as determined in the young wines at this date. These percentages range very closely with those of Bordeaux clarets, the Grenache showing the highest, and the Car-

ignane the lowest average, viz: 9.45 and 8.66 per cent respectively; the Mataro about midway between.

A striking regularity appears in the next column, No. 4, showing the tannin percentages. Here also the differences all fall one way, showing more tannin for Fresno than for Livermore—a somewhat unexpected result, but which tends to strengthen the presumption that Fresno will find a specialty in the production of ports of good keeping qualities. On the whole, however, these tannin percentages are considerably below the average on record for the Bordeaux clarets, most of which range near .20 per cent, or 2 *pro mille*.

It may be added that the determination of the tannin of Zinfandel wines, now in progress, corroborates in general the increase of tannin to southward, but shows a much wider range for the musts of that variety.

In the percentage of acid, as shown in column No. 5, Fresno falls uniformly behind Livermore, most strikingly so in the case of Mataro and Grenache, but little in that of the Carignane. This was to be expected in view of the climatic differences, and it conveys a strong hint in regard to the kind of wines that Fresno should not attempt to make unless from

grape varieties which, like the Carignane, maintain a respectable acid percentage even there.

It is to be regretted that no European analyses of these grape varieties are available for comparison, which is therefore possible only so far as the commercial wines known to be largely made from them, may be considered representative, and may hereafter be compared with the wines made from these musts. It is as yet too early in the season to test these wines; but it is highly desirable that the comparison, when made, should be as extensive as possible, and therefore persons who have during the past season, or previously, made wines exclusively from one of these, or other important wine grapes, would confer a favor and a benefit upon the progress of rational wine-making and blending in California, by transmitting to us samples of not less than two bottles each of such wines, for analysis. It is certainly by the light of such definite determinations of the influence exerted upon the composition of wines and musts by the several climates and localities, that the solution of the problem of proper co-adaptation of grape-varieties, climates, soils and blends can be most rapidly approached.

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